

11. The method as in claim 1, wherein comparing the color of at least a portion of the pixels further comprises:

determining a set of color coordinates for pixels in the at least a portion of the pixels; and

comparing the color coordinates to a set of boundaries for a valid color area.

12. The method as in claim 1, wherein authenticating the substrate comprises identifying at least one code.

13. The method as in claim 12, wherein identifying at least one code comprises:

tracking a number of acceptable results for at least one of the first comparison test and the second comparison test and certifying at least one of the predetermined color and the morphological aspect where the number of acceptable results is above a predetermined threshold; and

validating a presence of the code once each predetermined color and each morphological aspect comprised in the code are certified.

14. The method as in claim 1, wherein at least one of the predetermined color and the predetermined morphological value is at least one of manually determined, automatically determined and generated from an image of at least one authentic substrate.

15. A system for authentication of a substrate, the system comprising:

a source of authentication data comprising authentic color information and morphological aspect information, the authentication data derived from at least one color image of at least one authentic substrate comprising at least one set of security features, the morphological aspect information of the at least one set of security features of the authentic substrate is determined by operation of a morphological determination algorithm;

an imaging sub-system for producing a color image of the substrate that is to be authenticated, the substrate that is to be authenticated comprises at least one set of security features; and

a processor coupled to the source of authentication data and coupled to the imaging sub-system, the processor adapted for comparing color information and morphological aspect information of the at least one set of security features of the color image of the substrate that is to be authenticated to the authentication data and determining the authenticity of the substrate.

16. The system as in claim 15, wherein the morphological aspect information comprises a number of pixels derived from the at least one color image of at least one authentic substrate.

17. The system as in claim 15, wherein the morphological aspect information comprises at least one of shape information, size information, thickening information, thinning information, and connected components information.

18. The system as in claim 15, wherein the authentication data comprises at least one code.

19. The system as in claim 15, wherein the imaging sub-system comprises a CCD array and a plurality of color filters.

20. The system as in claim 19, wherein the plurality of color filters comprises a Bayer mosaic pattern.

21. The system as in claim 15, wherein the imaging sub-system comprises an array of RGB CCD photo detectors.

22. A method for providing calibration data for a system for authenticating a substrate, the method comprising:

selecting at least one authentic substrate comprising at least one set of security features;

generating a color image of the at least one authentic substrate;

analyzing the color image to determine color data for the at least one set of security features and storing the color data as calibration data; and,

analyzing the color image to determine morphological aspect data for the at least one set of security features by operation of a morphological determining algorithm and storing the morphological aspect data as calibration data.

23. The method as in claim 22, wherein the morphological determining algorithm comprises an algorithm for performing one of: counting pixels about a perimeter, a connected components analysis, a thickening analysis, a directional analysis, a thinning analysis and a hit-or-miss transform analysis.

24. The method as in claim 22, wherein the morphological aspect data comprises data regarding at least one of a shape and a size.

25. The method as in 22, wherein the calibration data comprises a statistical analysis of at least one of the color data and the morphological aspect data.

26. The method as in 25, wherein the statistical analysis comprises at least one of an average, a standard deviation, and a confidence level for the at least one set of security features.

27. A computer program stored on computer readable media, the computer program comprising instructions for operation of a device adapted for authentication of a substrate by:

generating a color image of the substrate, the color image comprising pixels;

identifying at least one region of authentically colored pixels by comparing the color of at least a portion of the pixels to at least one predetermined color in a first comparison test;

determining at least one morphological aspect for the at least one region by operation of a morphological determining algorithm;

comparing the at least one morphological aspect for the at least one region to at least one predetermined morphological value in a second comparison test; and,

authenticating the substrate if the first comparison test and the second comparison test are successful.

28. The computer program as in claim 27 wherein the morphological determining algorithm comprises one of: counting pixels about a perimeter, a connected components analysis, a thickening analysis, a thinning analysis and a hit-or-miss transform analysis.

29. The computer program as in claim 28, wherein comparing the color of at least a portion of the pixels further comprises: